

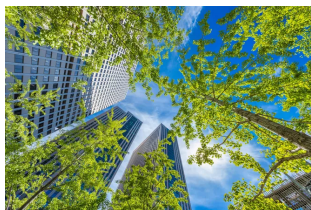
Creating The Tree-Lined Outdoor Spaces Tenants Want Is No Walk In The Park

April 21, 2021 | Jacob Bourne, Bisnow San Francisco Bay Area

(<https://www.bisnow.com/author/jacob-bourne-415780>) (<mailto:Jacob.Bourne@bisnow.com>)

Demand for greener, wilder spaces in cities has risen in lockstep with greater environmental awareness, increasingly translating into commercial developments with landscaped outdoor areas that provide habitat for humans and other species alike.

However, crafting such biologically diverse areas involves intelligent design that considers a multitude of factors, including ways to keep potentially costly landscape inputs in check and changing environmental conditions that threaten the flourishing of trees.



With the coronavirus pandemic's near sequestering of people in their homes for over a year, the importance of open space, including areas carved into multifamily developments, feature prominently. For apartment amenities (<https://www.bisnow.com/tags/amenities>), renters prioritized outdoor space access in their living situations above all others, according to a report from Zumper that tracked amenity search rates. Between 2020 and 2021, the outdoor space search rate increased by 143%.

“Open space has always been an amenity, but more so now with work-from-home, there's been a lot more drive from the developers' standpoint to really consider offering the right scaled spaces in the outdoor environment that can entertain this work-from-home lifestyle,” SWA Group associate principal Tony Lopez said.

The desire for nature extends to offices as well and could play a vital role in attracting talent back to the workplace. A post-pandemic workplace report by Botanical Designs found that top priorities of office employees include natural light, fresh air and plants and that “creating a nature-based environment with plants and natural materials is essential to post-pandemic business survival.”

These wilder urban spaces and what they provide, whether in the central courtyard of a multifamily project, a rooftop garden in a tech campus, a sidewalk planting or a park, are anchored by trees. Trees hold the power of placemaking by attracting people to their shade and beauty, by being an integral part of defining the ethos of a place and by evoking memories of cherished places and changing seasons.

These elements make up the “wow” factor that Lopez said developers have come to crave on a project’s opening day, where the presence of large trees one would normally see in a park can serve as a prime selling point for new development. Such trees with broad canopies can draw people to a place and oftentimes are the backdrop for a project’s Instagram moment, Lopez said.

While not necessarily difficult to incorporate wooded areas into commercial projects, it is far more complex than simply digging holes and putting trees in them. Trees can require much space — vertical, horizontal and subterranean. The size of a tree at maturity needs to be considered for spacing from other plantings, walking areas and building facades. Root system growth can be obstructed by underground structures or, in turn, cause damage to utilities or foundations.

Sometimes trees are planted in urban areas where there is inadequate soil, and they can’t grow, Asakura Robinson founding principal Keiji Asakura said. Adding soil can be expensive, especially if it is higher quality soil containing necessary nutrients, Lopez said. The trees themselves can be costly, especially if they are mature ones, which range from \$1K to \$10K, though younger specimens that lack defined canopies can cost much less. While planting mature trees can significantly impact the opening day of a project, younger trees have faster growth rates, are more adaptable to new environments and save considerable money, Asakura said.

Factors regarding the placement of trees are multifaceted. For example, newer buildings with prominent glass facades commonly have windows with high R-values making them more energy efficient (<https://www.bisnow.com/silicon-valley/news/healthcare/skanska-breaks-ground-on-californias-first-zne-mental-health-campus-108544>). However, these windows are highly reflective, emitting intense heat and potentially damaging trees planted too close, Asakura said.

In the American West, drought and wildfire-prone conditions (<https://www.bisnow.com/san-francisco/news/architecture-design/its-closing-in-on-us-wildfire-experts-push-for-buildings-designed-against->

encroaching-flames-108345) necessitate thoughtful tree planting. In addition to planting trees at least 5 to 10 feet away from structures in high fire-risk areas, attention also must be paid to preventing fire ladders or a type of undergrowth planting that can be dangerous if the wrong species is used in the wrong place.

“If I planted a 20-foot tree underneath the canopy of a 100-foot tree, I basically just created an opportunity for the fire to spread from one place to the next,” Design Studios Landscape Development Senior Designer Ryan Freeborn said. “We have to choose carefully.”

Water conservation in drought-prone places like California and the Southwest means that trees with low to moderate water requirements are optimal choices. However, advancements in irrigation technology by companies like Hunter Industries and Rain Bird deploy sensors and controllers for drip irrigation systems that track weather conditions and adjust water flow to achieve optimal irrigation.

Furthermore, the U.S. Environmental Protection Agency identified adding trees and vegetation as an effective method to reduce the heat island effect, and utilizing drought-tolerant species is much less water-intensive than maintaining lawns. California’s Contra Costa County and the city of Palo Alto, for example, offer rebate programs for property owners to convert lawns to “water-wise” landscaping.

Native species are often a prime choice because they can be better adapted to a given climate. However, climate change (<https://www.bisnow.com/tags/climate-change>) has stressed this adaptability as evidenced by the U.S. Department of Agriculture’s Hardiness Zone Map, in which zones shifted northward between 1989 and 2018, as reported by Climate Central (<https://www.climatecentral.org/gallery/maps/planting-zones-moving-north>).

Before 1980, San Francisco would experience several days of below-freezing temperatures annually, but the number of freezing days in the intervening 41 years has amounted to only 15 days, as reported by Popular Science (<https://www.popsci.com/story/environment/us-tropicalizing/>). Such changes can impact both native and non-native species.



One of the main advantages of planting native species is that they provide habitat for insects and animals and that is one reason why Asakura aims to plant at least 60% native species on projects.

"There is an ecological value that the trees provide as habitats for birds and insects," Asakura said. "When you plant some other foreign species, the insects and birds don't necessarily recognize that tree. The insects will likely go to the native tree because they know what it tastes like. They nibble on that, and of course, the caterpillar comes and then the bird comes. The introduced species doesn't have that ecological value as much as native species."

Other factors in tree selection, such as varying light tolerances among species, involve shade studies conducted on buildings to inform decision-making. In addition to considering a developer's preferences, Lopez says he considers what kind of landscape story a project is trying to tell. For example, achieving a woodland aesthetic would involve incorporating oak trees versus more drought-tolerant native species that evoke the quintessential Los Angeles lifestyle while also reducing water usage, Lopez said.

"Driving through Los Angeles, you'll notice a pretty good consistency of the tree canopy along all the boulevards and avenues," Lopez said. "When it comes down to selection, we like to be mindful of the context of the project. So that we are able to tie into the streets' vernacular but also the aesthetic of the neighborhood, so it feels integrated."

Beyond aesthetics and placemaking

(<https://www.bisnow.com/tags/placemaking>), trees are herculean in their environmental and health benefits. For this reason, the city of Los Angeles requires at least one tree for every four units in multifamily (<https://www.bisnow.com/tags/multifamily>) projects, something that Lopez said his clients adhere to enthusiastically realizing the popularity of the amenity.

In addition to requirements, governments are playing a more significant role in urban tree planting. The California Natural Resources Agency announced \$28.5M in funding this month for 25 projects that will reduce greenhouse gas emissions (<https://www.bisnow.com/tags/greenhouse-gas-emissions>) by replacing asphalt with native pollinator plant gardens, nature-based outdoor play areas and pedestrian pathways.

The city of Houston partnered with 100 Resilient Cities to plant 4.6 million native trees by 2030 to mitigate intensifying flood disasters. Trees play an essential role in preventing stormwater runoff because the roots help water percolate into the ground, Asakura said.

In 2016, nearly 80% of San Francisco voters voted in favor of Proposition E, making it the city's responsibility to maintain all street trees and repair sidewalks damaged by trees. Friends of the Urban Forest Program Director Karla Nagy hopes that the Biden administration's infrastructure bill will provide urban forestry funding as a climate mitigation strategy that will also foster planted areas in underserved neighborhoods.

The equity issue around access or lack thereof to vegetated open spaces areas is important. Trees can improve mental health and reduce blood pressure, cool the air between 2 and 8 degrees Celsius, filter urban pollution and fine particulates out of the air, reduce heating and cooling expenses and increase property values by 20%, according to the Food and Agriculture Organization of the United Nations. In terms of mitigating climate change (<https://www.bisnow.com/tags/climate-change>), a single tree can absorb up to 150 kilograms of carbon dioxide from the air per year.

CMG Landscape Architecture founding partner Kevin Conger has been working on a DePave Park project in Alameda that involves removing concrete from a 13-acre former military base and transforming it into an ecological park. He said the project is geared to maximize carbon sequestration by restoring nature and repurposing the existing concrete on-site. Whereas the original 80-year-old site would take another 220 years to offset its carbon footprint, the project is set to mitigate the carbon emissions (<https://www.bisnow.com/tags/carbon-emissions>) from the original construction in just four years.

In the Bay Area, residents' high regard for natural areas like the Marin Headlands and the Sierra Nevada mountains lends itself to their wanting nature closer to home. CMG's developer clients are amenable to meeting those needs and want to do right by the environment, Conger said. The trick is to find creative ways to develop scaled-down areas that can provide natural places for humans and wildlife tucked into commercial projects.

For example, a multifamily development at 855 Brannan St. in S.F. contains an inner courtyard that hosts a grove of mature Redwood trees. The Transbay Transit Center in downtown S.F. includes a 5.4-acre rooftop park with trees, gardens, walkways and benches. Facebook's Menlo Park campus

has a building with a 9-acre rooftop park featuring native plants in a habitat-supporting environment equipped with footpaths and places for people to be in nature. Even a family of foxes lives in the park, and although Conger has no idea how they got there, he said that Facebook employees love their presence.

Not all urban commercial projects have to find nooks and crannies to place trees. The major mixed-use development being built in S.F.'s Treasure Island will have 300 acres of publicly accessible park space with a large portion on the northern side of the island called the Wilds featuring a habitat-supporting area with trails, Conger said.

Planting new trees can be important, but preserving existing mature trees is another route toward achieving the desired landscape effect while saving time and money. Among the myriad benefits of trees, they can also be a powerful public relations tool in places where there is resistance to new development. Asakura cited the H-E-B Montrose Market at Dunlavy and Alabama streets in Houston, in which the developer responded to a neighborhood petition to preserve trees on the site. The preservation of the trees resulted in a unique environment, a popular store and the project winning an award from the Urban Land Institute, Asakura said.

Friends of the Urban Forest has often partnered with developers who are concerned about public sentiment regarding their projects, Nagy said. The group has stepped in to lead community engagement that involves neighbors and volunteers conducting planting projects in public right-of-way areas surrounding a project. Such planted areas can make projects more palatable to the community, Nagy said.

“Urban forestry is really exciting in San Francisco right now,” Nagy said. “Across the globe, people are identifying trees as a way to mitigate climate change and also to engage with communities and bring people together.”

Although trees appear to be a current focal point for urban development, other forces at play could curb the verdant renaissance. Tree mortality is increasing in the western U.S. due to increased heat, drought and wildfires caused by climate change

(<https://www.bisnow.com/national/news/sustainability/big-data-and-ai-target-the-built-environments-high-carbon-footprint-108372>), as reported by The Guardian

(<https://www.theguardian.com/environment/2021/mar/10/is-this-the-end-of-forests-as-weve-known-them>). In the East Bay, native and non-native

species are being attacked by a fungus-like pathogen causing sudden oak death disease, as reported by Bay Nature (<https://baynature.org/2021/03/04/disease-outbreak-appears-to-be-killing-bay-area-trees/>).

Because of the disease, extra precautions and inspections are taking place to ensure that the pathogen doesn't spread to new areas, Conger said.

"The disease is a real problem," Conger said. "The sudden oak death, which is now becoming widespread in a whole range of California native plants, is really an issue to contend with. It's really going to be a big problem in the coming decades because there's the potential that we lose a lot of native plants both in the wild and in these urban conditions. We might see a lot of urban landscapes become infected with this disease."

*Contact Jacob Bourne at Jacob.Bourne@bisnow.com
(<mailto:Jacob.Bourne@bisnow.com>)*

See Also: 'It's Closing In On Us': Wildfire Experts Push For Buildings Designed Against Encroaching Flames (</san-francisco/news/architecture-design/its-closing-in-on-us-wildfire-experts-push-for-buildings-designed-against-encroaching-flames-108345>)

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